AMENDMENTS TO THE CLAIMS

1. (Previously Presented) An optical information recording medium reproducing information stored in a substrate by irradiation of a light beam, comprising:

a temperature responsive layer whose reflectance and/or transmittance reversibly changes in accordance with a change in temperature caused by the irradiation of a light beam; and

a light absorption layer which changes a temperature of the temperature responsive layer, wherein

the light absorption layer absorbs the light beam so as to raise the temperature of the temperature responsive layer.

2. (Original) The optical information recording medium as set forth in claim 1, wherein:

the reflectance and/or the transmittance of the temperature responsive layer with respect to the irradiation of the light beam changes by an interference effect between a reflection light of the light beam reflected on one face of the temperature responsive layer and a reflection light of the light beam reflected on the other face of the temperature responsive layer.

3. (Original) The optical information recording medium as set forth in claim 1, wherein:

the temperature responsive layer is arranged so that a low transmittance wavelength domain generated by absorption of a shorter wavelength side at an ordinary temperature is shifted toward a longer wavelength side or a shorter wavelength side by a certain degree of rise in temperature of the temperature

responsive layer, so that a spectral transmittance and/or a spectral reflectance with respect to the wavelength of a readout light beam changes.

4. (Original) The optical information recording medium as set forth in claim 1, wherein:

the temperature responsive layer contains a metal oxide whose reflectance and/or transmittance changes with an increase in temperature.

5. (Original) The optical information recording medium as set forth in claim 1, wherein:

the temperature responsive layer contains a zinc oxide.

6. (Original) The optical information recording medium as set forth in claim 1, wherein:

the light absorption layer is formed on the temperature responsive layer on a surface opposite to a surface irradiated with a light beam.

7. (Original) The optical information recording medium as set forth in claim 1, wherein:

the light absorption layer contains a phase change material, a magnetooptical material, or an alloy of the foregoing materials.

8. (Original) The optical information recording medium as set forth in claim 1, wherein:

the light absorption layer contains Si, Ge, AgInSbTe, GeSbTe, TbFeCo, DyFeCo, GdFeCo, or an alloy of two or more types of the foregoing metals.

9. (Original) The optical information recording medium as set forth in claim 8, wherein:

the light absorption layer is made of Si.

10. (Original) The optical information recording medium as set forth in claim 1, wherein:

the temperature responsive layer and the light absorption layer are adjacent to each other.

11. (Original) The optical information recording medium as set forth in claim 1, wherein:

a minute recording mark less than a diffraction limit of a readout light beam can be reproduced by a change in reflectance and/or transmittance with a change in temperature of the temperature responsive layer caused by the light beam and the light absorption layer.

12. (Previously Presented) An optical information recording medium for storing information by irradiation of a light beam and for allowing readout of the information by irradiation of a light beam, comprising:

a recording layer for recording information;

a temperature responsive layer whose reflectance and/or transmittance reversibly changes with a change in temperature caused by the irradiation of a light beam; and

a light absorption layer which changes a temperature of the temperature responsive layer, wherein

the light absorption layer absorbs the light beam so as to raise the temperature of the temperature responsive layer.

13. (Original) The optical information recording medium as set forth in claim 12, wherein:

the reflectance and/or the transmittance of the temperature responsive layer with respect to the irradiation of a light beam changes by an interference effect between a reflection light of the light beam reflected on one face of the temperature responsive layer and a reflection light of the light beam reflected on the other face of the temperature responsive layer.

14. (Original) The optical information recording medium as set forth in claim 12, wherein:

the temperature responsive layer is arranged so that a low transmittance wavelength domain generated by absorption of a shorter wavelength side at an ordinary temperature is shifted toward a longer wavelength side or a shorter wavelength side by a certain degree of rise in temperature of the temperature responsive layer, so that a spectral transmittance and/or a spectral reflectance with respect to the wavelength of a readout light beam changes.

15. (Original) The optical information recording medium as set forth in claim 12, wherein:

the temperature responsive layer contains a metal oxide whose reflectance and/or transmittance changes with an increase in temperature.

16. (Original) The optical information recording medium as set forth in claim 12, wherein:

the temperature responsive layer contains a zinc oxide.

17. (Original) The optical information recording medium as set forth in claim 12, wherein:

the light absorption layer is formed on the temperature responsive layer on a surface opposite to a surface irradiated with a light beam.

18. (Original) The optical information recording medium as set forth in claim 12, wherein:

the light absorption layer contains a phase change material, a magnetooptical material, or an alloy of the foregoing materials.

19. (Original) The optical information recording medium as set forth in claim 18, wherein:

the light absorption layer contains Si, Ge, AgInSbTe, GeSbTe, TbFeCo, DyFeCo, GdFeCo, or an alloy of two or more types of the foregoing metals.

20. (Original) The optical information recording medium as set forth in claim 19, wherein:

the light absorption layer is made of Si.

21. (Original) The optical information recording medium as set forth in claim 12, wherein:

the temperature responsive layer and the light absorption layer are adjacent to each other.

22. (Original) The optical information recording medium as set forth in claim 12, wherein:

a minute recording mark less than a diffraction limit of a readout light beam can be reproduced by a change in reflectance and/or transmittance with a change in temperature of the temperature responsive layer caused by the light beam and the light absorption layer.

23. (Canceled)

24. (Currently Amended) A readout method by irradiation of a light beam for reproducing information recorded on an optical information recording medium having: a temperature responsive layer whose reflectance and/or transmittance reversibly changes with a change in temperature caused by the irradiation of a light beam; and a light absorption layer which changes a temperature of the temperature responsive layer,

the method comprising the steps of:

irradiating the optical information recording medium with a light beam so as to generate a high temperature section and a low temperature section in a light beam spot of the temperature responsive layer, so that the transmittance of the temperature responsive layer decreases in the high temperature section, and the high temperature section is further heated by the light absorption layer; and

reproducing the information with a light transmitted through the low temperature section of the temperature responsive layer; and

causing the light absorption layer to absorb the light beam so as to raise the temperature of the temperature responsive layer.

25. (Currently Amended) A readout method by irradiation of a light beam for reproducing information recorded on an optical information recording medium having: a temperature responsive layer whose reflectance and/or transmittance reversibly changes with a change in temperature caused by the irradiation of a light beam; and a light absorption layer which changes a temperature of the temperature responsive layer,

the method comprising the steps of:

irradiating the optical information recording medium with a light beam so as to generate a high temperature section and a low temperature section in a light beam spot of the temperature responsive layer, so that the transmittance of the temperature responsive layer increases in the high temperature section, and the high temperature section is further heated by the light absorption layer; and

reproducing the information with a light transmitted through the high temperature section of the temperature responsive layer; and

causing the light absorption layer to absorb the light beam so as to raise the temperature of the temperature responsive layer.

26. (Canceled)

27. (Currently Amended) A recording method by irradiation of a light beam for recording information onto an optical information recording medium having: a temperature responsive layer whose reflectance and/or transmittance reversibly changes with a change in temperature caused by the irradiation of a

light beam; and a light absorption layer changes a temperature of the temperature responsive layer,

the method comprising the steps of:

irradiating the optical information recording medium with a light beam so as to generate a high temperature section and a low temperature section in a light beam spot of the temperature responsive layer, so that the transmittance of the temperature responsive layer decreases in the high temperature section, and the high temperature section is further heated by the light absorption layer; and

heating a recording layer with a light transmitted through the low temperature section of the temperature responsive layer;

heating a recording layer with a light transmitted through the low temperature section of the temperature responsive layer; and

causing the light absorption layer to absorb the light beam so as to raise the temperature of the temperature responsive layer.

28. (Currently Amended) A recording method by irradiation of a light beam for recording information onto an optical information recording medium having: a temperature responsive layer whose reflectance and/or transmittance reversibly changes with a change in temperature caused by the irradiation of a light beam; and a light absorption layer which changes a temperature of the temperature responsive layer,

the method comprising the steps of:

irradiating the optical information recording medium with a light beam so as to generate a high temperature section and a low temperature section in a light beam spot of the temperature responsive layer, so that the transmittance of

the temperature responsive layer increases in the high temperature section, and the high temperature section is further heated by the light absorption layer; and

heating a recording layer with a light transmitted through the high temperature section of the temperature responsive layer; and

causing the light absorption layer to absorb the light beam so as to raise the temperature of the temperature responsive layer.

29. (Previously Presented) An optical information readout device, comprising:

an optical information recording medium; and

an optical pickup for irradiating the optical information recording medium with a light beam,

wherein:

the optical information recording medium includes: a temperature responsive layer whose reflectance and/or transmittance reversibly changes with a change in temperature caused by the irradiation of a light beam; and a light absorption layer which changes a temperature of the temperature responsive layer; and

the optical pickup is arranged to enable readout of a minute recording mark less than a diffraction limit of a readout light beam by irradiating the optical information recording medium with a light beam so as to generate a high temperature section and a low temperature section in a light beam spot of the temperature responsive layer, so that the transmittance of the temperature responsive layer decreases in the high temperature section, and the high temperature section is further heated by the light absorption layer; and

reproducing the information with a light transmitted through the low temperature section of the temperature responsive layer; and

causing the light absorption layer to absorb the light beam so as to raise the temperature of the temperature responsive layer.

30. (Previously Presented) An optical information recording device, comprising:

an optical information recording medium; and

an optical pickup for irradiating the optical information recording medium with a light beam and for detecting a reflection light,

wherein:

the optical information recording medium includes: a temperature responsive layer whose reflectance and/or transmittance reversibly changes with a change in temperature caused by the irradiation of a light beam; and a light absorption layer which changes a temperature of the temperature responsive layer; and

the optical pickup is arranged to enable recording of a minute recording mark less than a diffraction limit of a light beam by irradiating the optical information recording medium with a light beam so as to generate a high temperature section and a low temperature section in a light beam spot of the temperature responsive layer, so that the transmittance of the temperature responsive layer decreases in the high temperature section, and the high temperature section is further heated by the light absorption layer; and

heating a recoding layer with a light transmitted through the low temperature section of the temperature responsive layer; and

causing the light absorption layer to absorb the light beam so as to raise the temperature of the temperature responsive layer.

31. (Previously Presented) An optical information readout device, comprising:

an optical information recording medium; and

an optical pickup for irradiating the optical information recording medium with a light beam,

wherein:

the optical information recording medium includes: a temperature responsive layer whose reflectance and/or transmittance reversibly changes with a change in temperature caused by the irradiation of a light beam; and a light absorption layer which changes a temperature of the temperature responsive layer; and

the optical pickup is arranged to enable readout of a minute recording mark less than a diffraction limit of a readout light beam by irradiating the optical information recording medium with a light beam so as to generate a high temperature section and a low temperature section in a light beam spot of the temperature responsive layer, so that the transmittance of the temperature responsive layer increases in the high temperature section, and the high temperature section is further heated by the light absorption layer; and

reproducing the information with a light transmitted through the high temperature section of the temperature responsive layer; and

causing the light absorption layer to absorb the light beam so as to raise the temperature of the temperature responsive layer.

32. (Previously Presented) An optical information recording device, comprising:

an optical information recording medium; and

an optical pickup for irradiating the optical information recording medium with a light beam and for detecting a reflection light,

wherein:

the optical information recording medium includes: a temperature responsive layer whose reflectance and/or transmittance reversibly changes with a change in temperature caused by the irradiation of a light beam; and a light absorption layer which changes a temperature of the temperature responsive layer; and

the optical pickup is arranged to enable recording of a minute recording mark less than a diffraction limit of a light beam irradiating the optical information recording medium with a light beam so as to generate a high temperature section and a low temperature section in a light beam spot of the temperature responsive layer, so that the transmittance of the temperature responsive layer increases in the high temperature section, and the high temperature section is further heated by the light absorption layer; and

heating a recoding layer with a light transmitted through the low temperature section of the temperature responsive layer; and

causing the light absorption layer to absorb the light beam so as to raise the temperature of the temperature responsive layer.